Commonwealth of Virginia
Southwest Region PSAPs
Statement of Work (SOW)

Prepared by: GeoComm Corp.

The following Task Statements have been reviewed by and with each of the individual PSAPs constituting the Southwest Region and their individual needs and decisions are reflected in the accompanying tables. For each Task Statement, it is implicit that GeoComm, as the Project Management Consultant, will perform that task for those 9-1-1 entities where the box corresponding to that task has been checked for that 9-1-1 entity.

Note: The Phase I section includes references to the Phase II implementation section. This is done to account for a combination Phase I, Phase II implementation, where feasible and desirable, and to ensure that what is done for Phase I will not have to be redone by the PSAP for Phase II. "Throw Away" or start-over Phase II implementations are not acceptable.

"Phase I" Wireless 9-1-1 Task Statements:

1. GeoComm will make initial contact with the entity's 9-1-1 Service Provider (typically the LEC) and determine the methods of delivery of wireless Phase I services, NCAS, CAS, HCAS that are currently supported in the selective router(s) that serve the PSAP. This determination will include Phase I and II issues (See Phase II Section) in order to avoid any waste of time, effort and to avoid the need to make unnecessary changes.
   a. Determine the capability of the database and the availability and details of the Phase I ALI format employed by that entity's 9-1-1 Service Provider.
   b. Obtain a layout of the Phase I ALI data format.
   c. Determine what (if any) upgrades are needed to the 9-1-1 service provider's router and, if needed, when they will be installed.
   d. Determine what, if any, upgrades are needed to the network.

2. With this information, GeoComm will assess and document the ability of the PSAP, based on the requirements of the 94-102 Report and Order *(King County, Washington and Richardson, Texas responses included)* to receive and use the data from the wireless 9-1-1 calls. Some of those areas to be addressed will be:
   a. PSAP's 9-1-1 CPE capabilities.
   b. Peripheral equipment such as CAD, Records Management, and Location Technologies being used or to be employed to find the caller.
   c. Current 9-1-1 trunking status and usage statistics if available.
   d. Current level of 9-1-1 services being supported: (Enhanced, wireless Phase I, etc.).
      1). Is the PSAP now receiving 9-1-1 wireless calls, and how?
      2) Are the wireless calls being received being prescreened by a common communications center or another PSAP?
   e. 9-1-1 call backup or overflow arrangements, if any.
   f. 9-1-1 system or equipment redundancy issues
   g. Current or proposed interagency call handling agreements.
   h. Current contractual arrangements that might impact wireless 9-1-1

3. Based on the ability of the PSAP to comply with the requirements of a valid carrier request, GeoComm will identify the wireless carriers and draft the Phase I request letters from the 9-1-1 entity for each wireless service provider (WSP) providing service in the PSAP coverage area.
   a. Copies will be sent via certified mail to the 9-1-1 Service Provider, Wireless E-911 Services Board and others, as deemed necessary.

4. GeoComm will contact the WSPs that are providing service in the area served by each PSAP and determine the method each will employ to deliver Phase I calls. (This is an ongoing process to ensure that any new WSPs are identified.)
   a. Determine the WSPs current state of readiness with regard to their connectivity to the 9-1-1 Service Provider selective router, connectivity to the SCP and (if it currently exists) their connectivity to the PSAP.
   b. Determine if the WSP uses a "third party" or contracted agent to handle their wireless 9-1-1 implementations. If so, determine who that agent is and who the WSP's contact person with that agent company is.
   c. Determine the capability of the WSP's Mobile Switching Center(s) (MSC) to support Phase I, and if upgrades are required, when they will be available.

5. GeoComm will coordinate a meeting of all of the 9-1-1 entity's "wireless implementation team" members, *(PSAP personnel, WSP, 9-1-1 Service Provider, PSAP CPE Vendor, PSAP Location Services Vendor, Other PSAP Vendors, WSP Third Party Agent, WSP partner vendors, and GeoComm personnel)* and which the team will:
   a. Establish a plan for the implementation process.
   b. Identify and introduce the parties to each other
   c. Identify who is responsible for what. – Assign tasks.
   d. Establish contact persons for each of the team members.
   e. Discuss technologies such as method of wireless call delivery, ALI formats, cell sector naming conventions, redundancy, reliability, initial testing discussions (to be refined later), initial cutover discussions (to be refined later).
   f. Identify any issues that might impede or delay the project.
   g. Set general timelines
      1) Keep in mind sequential testing and cutover of carriers.
   h. Manage other meetings with players that will take place in group or individual settings during the implementation process.
   i. Generate and distribute minutes of the meetings to all of the team members.

6. Based on the established rules, GeoComm will draft a cost recovery funding request to the Wireless E-911 Services Board.

7. GeoComm will coordinate and facilitate a review of all Contracts, Service Agreements, Non Disclosure Agreements (NDA), Memorandums of Understanding (MOU) and Interagency Agreements as may be required with PSAP representatives, including 9-1-1 entity legal counsel, if desired.
   a. Negotiate with the carriers based on the desires of the PSAP.

8. GeoComm will determine the need or desire of the PSAP to employ separate wireless 9-1-1 trunks for wireless purposes between the Selective Router and the PSAP.
   a. May involve a request to the 9-1-1 Service Provider for a traffic study.
   b. Discuss alternatives that may be available to the PSAP dependent upon several variables. (PSAP Coordinator has final say.)
   c. If necessary or desired recommend the appropriate number of wireless 9-1-1 trunks needed.
   d. Order and coordinate the desired additional trunks on behalf of the PSAP Coordinator.

9. GeoComm will coordinate WSP activities:
    a. Receive and coordinate approval of the physical address of the cell site/sector based on addressing conventions employed by the PSAP addressing authority.
    b. Route the site/sector to the proper PSAP using maps and cell site listings provided by the WSP or its agent, and any additional information available to the PSAP or its partners.
        1) This task will involve working with all PSAPs in the region and any PSAP that borders the PSAP to establish the proper routing for each cell site serving the region without regard to State boundaries.
    c. Approve wireless carrier data sheets, normally sent to a third party agent(s) to ensure that approved data decisions are carried forward and properly entered.
    d. Prepare a Microsoft Access® database that includes all of the data for each site/sector including but not limited to carrier name, site identification, site address, site/sector naming conventions, area coverage in miles, site x-y.
    e. Review all data to ensure accuracy
    f. Forward data to appropriate team members (such as PSAP location mapping vendor) that need it to ensure the proper operation of their systems.
    g. Monitor installation or upgrade of carrier facilities and processes.
    h. Monitor testing between the WSP and the 9-1-1 Service Provider prior to PSAP involvement.

10. GeoComm will coordinate and manage the various activities of the 9-1-1 Service Provider
    a. Facility upgrades
    b. Track connectivity orders from the PSAP and WSP perspective.
    c. Track any needed changes to the database, or ALI system.

11. GeoComm will coordinate and mange necessary activities involving the PSAP.
    a. Manage the installation of the wireless 9-1-1 trunks, if any are ordered.
    b. Monitor any CPE upgrades that may have been needed to ensure that all work is completed within the six-month implementation window.
        1) Particular attention must be paid to the impact of the ALI format change and its impact on the 9-1-1 and peripheral equipment such as CAD, etc.
        2) The placement of the CPN (calling party number) as it is impacted by the NCAS solution and any CPE or Router changes that can have a positive impact should be explored.
    c. Identify any delays and coordinate schedule changes with all team members.
    d. Coordinate ongoing routing, agreement, and data decisions with the PSAP Coordinator.
    e. Keep PSAP Coordinator up to date concerning all activities.
    f. Identify and prepare needed procedures such as trouble reporting, notification of cell coverage changes, system testing, wireless call back procedures and etc.
    g. Identify PSAP training needs, coordinate and provide training.
    h. Manage the implementation of the Phase I and/or Phase II service coordinating with all of the team members.

12. GeoComm will coordinate project status with team members via regularly scheduled conference calls.
    a. Said calls will take place on a weekly basis as the process nears the PSAP testing Phase, or at anytime that there is a need for them to be that frequent.
    b. Prepare and distribute minutes of said meetings.

13. Monthly, GeoComm will submit project status reports to the Wireless E-911 Services Board in approved formats.

14. GeoComm will coordinate Phase I testing and cutover.
    a. Establish a written testing plan to include the number of calls to be made and the number of teams making the calls, and etc.
    b. Determine if the calls will be taken at the live PSAP or at training PSAP (if available).
    c. Determine and identify staffing needs for the testing process.
    d. Prepare documentation to be kept, and who will be responsible for keeping said documentation.
    e. Require a conference bridge to be open for the testing process and staffed by at least the PSAP GeoComm, WSP, WSP Agent, 9-1-1 Service Provider, Mapping Vendor (if applicable), tester, and WSP Vendors.
    f. Establish that the PSAP has the right to cancel testing based on unusual circumstances.
    g. Coordinate, and take part in the testing and implementation process.

15. GeoComm will assist PSAP in the preparation of "true-up" documentation.

"Phase II" Wireless 9-1-1 Task Statements

This section is designed for those PSAPs that have Phase I operational and are moving with at least one WSP towards the process of implementing Phase II.

It is possible that the Phase II process might be planned to immediately follow the Phase I process for a given PSAP. In these cases some of the Phase II needs will be addressed simultaneously with those in the Phase I process, thereby appearing as if it is a single implementation. The PSAP should remember, however, that Phase I must be implemented before Phase II. Adherence to this philosophy greatly reduces the chances of unnecessary changes and redundant actions.

1. GeoComm will make initial contact with the 9-1-1 Service Provider and determine the methods of delivery of wireless Phase I and II services, NCAS, CAS, HCAS that are currently supported in the selective router(s) that serve the PSAP.
    a. Determine the capability of the database and the availability and details of the Phase II ALI format employed by the 9-1-1 Service Provider.
        1) Determine if Confidence and/or Reliability data will be supported.
        2) Determine if any upgrades will be needed.
        3). Determine if they can accommodate Confidence or Reliability data.
    b. Obtain a copy of the Phase II ALI format.
    c. Determine what if any upgrades are needed to the router and if needed when they will be installed.
    d. Determine which interface they will use for Phase II, E2, E2+, PAM or Enhanced PAM and the state of readiness of that interface.
    e. Determine what, if any, upgrades are needed to the network.

2. GeoComm will assess the ability of the PSAP, based on the requirements of 94-102 *(King County, Washington and Richardson, Texas responses included)* to receive and use the data from Phase II wireless 9-1-1 calls. Some of those areas to be addressed will be:
    a. 9-1-1 CPE capabilities.
    b. Peripheral equipment such as CAD, Records Management, and Location Technologies being used or to be employed to find the caller.
    c. Current 9-1-1 trunking status and usage statistics if available.
    d. Current Phase I system architecture and any changes that may be necessary.
    e. The ability to use the Phase II data as required by the order.
        1). How will the Phase II data be used to locate the caller?

3. Based on the ability of the PSAP to comply with the requirements of a valid carrier request, GeoComm will draft the Phase II request letters for each wireless service provider (WSP) providing service in the PSAP coverage area.
   a. Send copies via certified mail to the 9-1-1 Service Provider, Wireless E-911 Services Board and others as deemed necessary.

4. GeoComm will make contact with the WSPs providing service in the PSAP coverage area and;
   a. Determine their current state of readiness with regard to their connectivity to the 9-1-1 Service Provider Router, connectivity to the MPC, and to the PSAP.
   b. Determine if they use a third party or contracted agent.
      1). If so who the agent is and who their contact with that agent is.
   c. Determine the capability of their MSC(s) to support Phase II and, if upgrades are required, when they will be available.
   d. Determine their location technology choice. (TDOA, EOTD, AGPS, Hybrid, etc.)
      1) In most cases irrelevant to the PSAP.
   e. Determine the WSP's partner vendors, such as the location determination technology provider, the testing deployment consultant agency, etc.
   f. Determine if their method of call delivery (CAS, NCAS, HCAS) will change from Phase I
   g. Determine if the connectivity between their MSC, MPC, and Selective Router will need to be upgraded from Phase I.
   h. Determine the methodology they will employ in testing.
   i. Determine if coordinate based routing is available and the specifics regarding its deployment.
   j. Determine if they will supply confidence or reliability factor information.
   k. Obtain new routing maps of all cell sites/sectors and validate the Phase I routing.
      1) Create or update and verify the routing, and ALI data used in the Phase I implementation to assure that is still accurate.
      2) See that the carrier and third party agent makes any needed corrections.
      3) Address and route any new cell sites that are found in the process
   l. Determine the their expected time frames.

5. GeoComm will coordinate a meeting of the team, PSAP personnel, WSP, 9-1-1 Service Provider, PSAP CPE Vendor, PSAP Location Services Vendor, Other PSAP Vendors, WSP Third Party Agent, WSP partner vendors, GeoComm personnel. These meetings will take place on a carrier by carrier basis.
   a. Establish a plan for the implementation process.
   b. Identify and introduce parties.
      1). They may be different than Phase I
   c. Identify who is responsible for what.
      1). Assign tasks.
   d. Establish contact persons for each of the team members.
   e. Discuss technologies, such as method of wireless call delivery, ALI formats, cell sector naming conventions, redundancy, reliability, initial testing discussions (to be refined later), initial cutover discussions (to be refined later).
   f. Identify any issues that might impede or delay the project.
   g. Set general timelines
      1). Keep in mind sequential testing and cutover of carriers.
   h. Manage other meetings with players that will take place as a group or in individual settings during the implementation process.
   i. Keep and distribute minutes of the meetings to all of the team members.

6. Based on the established rules, GeoComm will draft a cost recovery funding request to the Wireless E-911 Services Board.

7. GeoComm will coordinate the review of Contracts, Service Agreements, NDAs, MOUs and Interagency Agreements as may be required with PSAP representatives, including PSAP legal counsel if desired.
   a. Negotiate with the carriers based on the desires of the PSAP.

8. If not done as part of Phase I, GeoComm will determine the need or desire of the PSAP to employ separate wireless 9-1-1 trunks for wireless purposes between the Selective Router and the PSAP.
   a. May involve a request to the 9-1-1 Service Provider for a traffic study.
   b. Discuss alternatives that may be available to the PSAP dependent upon several variables.
   c. If necessary or desired recommend the appropriate number of wireless 9-1-1 trunks needed.
   f. Order and coordinate the desired additional trunks on behalf of the PSAP Coordinator.

9. GeoComm will coordinate WSP activities:
   a. Receive audit and validate previous Phase I physical of cell site/sector addressing.
      1) Locate any new cell sites or any changes to previously approved cell sites and their associated ALI display data.
      2) Check routing of site/sector to the proper answering points using maps and cell site listing provided by the WSP or its agent and any additional information available at the PSAP or its partners.
         a). To ensure that any changes that may have been made have not changed the routing requirements.
         b). This task will involve working with all PSAPs in the region and any PSAP that borders one of the regional PSAP to establish the proper routing for each cell site serving the region without regard to State boundaries.
      3) Validate wireless carrier data sheets that were previously prepared to ensure that approved data decisions were carried forward and entered correctly by the carriers and or third party agents.
         a). Make any changes necessary.
      4) Update or prepare the Microsoft Access database that includes all of the data for each site/sector including but not limited to carrier name, site identification, site address, site/sector naming conventions, area coverage in miles, site x-y.
      5) Forward updated data to team members, such as PSAP location mapping vendor, who need it to ensure the operation of their services.
   b. Monitor installation or upgrade of carrier facilities and processes.
   c. Monitor testing between the carrier and the 9-1-1 Service Provider prior to PSAP involvement.

10. GeoComm will coordinate and manage the various activities of the 9-1-1 Service Provider
    a. Any facility upgrades resulting from change from Phase I to Phase II
    b. Track connectivity orders from the PSAP and WSP partners.
    c. Track any needed changes to the database, or ALI system.
    d. Track any interface issues such as the E2, E2+, or PAM

11. GeoComm will coordinate and mange necessary activities involving the PSAP.
    a. Manage the installation of the wireless 9-1-1 trunks if ordered.
    b. Monitor any CPE upgrades that may have been needed to ensure that all work is completed within the six-month implementation window.
        1) Particular attention must be paid to the impact of the ALI format change and its impact on the 9-1-1 and peripheral equipment such as CAD, etc.
        2) Impacts of the ALI rebid process should also be reviewed.
    d. Identify any delays and coordinate schedule changes with all team members.
    e. Coordinate ongoing routing, agreement, and data decisions with the PSAP Coordinator.
        1) These could change from those established in the Phase I process
    f. Keep PSAP Coordinator up to date concerning all activities.
    g. Identify and prepare needed procedures such as trouble reporting, notification of cell coverage changes, system testing, wireless call back procedures and etc.
        1) These would be in addition to or in place of those provided in the Phase I process.
    h. Identify PSAP training needs, coordinate and provide training.
    i. Manage the implementation of the Phase II service coordinating with all of the team members.

12. GeoComm will coordinate project status with all team members with regularly scheduled conference calls. Said calls will take place on a weekly basis as the process nears the PSAP testing phase or at anytime that there is a need for them to be that frequent.
    b. Prepare and distribute minutes of said meetings.

13. GeoComm will report project status to the Wireless E-911 Services Board on a monthly basis in an approved format.

14. GeoComm will coordinate Phase I testing and cutover.
    g. Establish a written testing plan to include the number of calls to be made and the number of teams making the calls, and etc.
    h. Determine if the calls will be taken at the live PSAP or at training PSAP if available.
    i. Determine and identify staffing needs for the testing process.
    j. Prepare documentation to be kept and who will be responsible for keeping said documentation.
    k. Require a conference bridge to be open for the testing process and staffed by at least the PSAP, GeoComm, WSP, WSP Agent, 9-1-1 Service Provider, Mapping Vendor (if applicable), tester, and WSP Vendors.
    l. Establish that PSAP has the right to cancel testing based on unusual circumstances.
    m. Coordinate, and take part in the testing and implementation process.

15 GeoComm will facilitate post implementation review to identify any remaining issues to be addressed or corrections that need to be made.

16. Should FCC or other enforcement action be required against a WSP or other team member, GeoComm will provide assistance (on matters other than legal advice) in the procedures to be followed by the impacted PSAP.

GENERAL PROVISIONS

1. This SOW may me amended throughout the process based upon issues found, such as the need to replace CPE or other systems. The SOW will be amended if the proposed changes fall under the coverage of the wireless program initiated by the State of Va. Wireless Services Board. Consultation with the Board and the affected PSAP will be take place prior to any such amendment proposal being initiated.

2. Should the process of implementing wireless 9-1-1 services under the auspices of the plan initiated by the Wireless Services Board result in the identification of needs over and above those included in the program, they will be addressed (under separate agreement), if desired by the impacted PSAP.

TIME ESTIMATES

For tasks related to Phase 1:

GeoComm estimates the need to expend **5,265** professional hours to provide the required Project Management consulting to the numerous jurisdictions in the S.W. Region to achieve the objective of preparing each entity to receive and process Phase 1 wireless E9-1-1 calls.

For tasks related to Phase 2:

GeoComm estimates the need to expend **3,875** professional hours to provide the required Project Management consulting to the numerous jurisdictions in the S.W. Region to achieve the objective of preparing each entity to receive and process Phase 2 wireless E9-1-1 calls.

Phase I

Tasks needing management:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PSAPs - Visited By - Date															
Bland Co. - PDL 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bristol, City of - NHF & GJ 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Buchanan Co.- PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Twin County 9-1-1 GJ 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dickenson Co - PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Giles Co GJ 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lee Co NHF & PDA & PDL & GJ 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Norton, City of - PLA 7/25/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Russell Co - PLA 7/25/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Scott Co - NHF&PDL&GJ - 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smyth Co - NHF 7/23/02	X-B	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tazewell Co - PDL 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Washington Co - PLA 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wise Co - PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wytheville, Town of - NHF 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Phase II

Tasks needing management:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PSAPs - Visited by - Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bland Co. - PDL 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bristol, City of - NHF & GJ 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Buchanan Co.- PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Twin County 9-1-1 GJ 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dickenson Co - PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Giles Co GJ 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lee Co PL, NF, GJ, LA 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Norton, City of - PLA 7/25/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Russell Co - PLA 7/25/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Scott Co - PL, NF, GJ 7/22/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Smyth Co - NHF 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Tazewell Co - PDL 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Washington Co - PLA 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wise Co - PLA 7/23/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wytheville, Town of - NHF 7/24/02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X